

**Azimuthal correlations with high-pt multi-hadron cluster triggers in  
Au+Au Collisions at  $\sqrt{(s_{NN})} = 200$  GeV from STAR**

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Di-hadron correlation measurements have been used to probe di-jet production in heavy ion collisions at RHIC. A strong suppression of the away-side high-pt yield in these measurements is direct evidence that high-pt partons lose energy as they traverse the strongly interacting medium. However, since the momentum of the trigger particle is not a good measure of the jet energy, azimuthal di-hadron correlations have limited sensitivity to the shape of the fragmentation function. We explore the possibility to better constrain the initial parton energy by using clusters of multiple high-pt hadrons in a narrow cone as the 'trigger particle' in the azimuthal correlation analysis. We present first results from this analysis of multi-hadron triggered correlated yields in Au+Au collisions at  $\sqrt{(s_{NN})} = 200$  GeV from STAR. The results are compared to measurements in d+Au collisions and Pythia calculations, and the implications for energy loss and jet fragmentation are discussed.